The Multimedia Electronic Patient Record: Current Issues

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Purposes of the System: Complete online patient data including both traditional medical chart information and clinical images is essential in providing healthcare in a multi-facility environment. To meet this need, the Department of Veterans Affairs has developed a multimedia online patient record that includes traditional medical chart information as well as a wide variety of medical images from specialties such as cardiology, pulmonary and gastrointestinal medicine, pathology, radiology, hematology, and nuclear medicine. The ability to perform direct image acquisition from DICOM devices combined with diagnostic radiology reading from high resolution workstations allows hospitals to operate without making xray film. The wide area network connection supports ad hoc queries to records at other VA sites. The practicing physician has all of the information needed, anywhere in the hospital, at any time.

The availability of complete patient data from a single source, the clinical workstation, allows better patient care and saves time for clinicians. Users can simultaneously access the patient's electronic chart including their images. Communication among providers is improved through the use of the workstation during conferences. Records can be accessed from facilities located across the network. Filmless hospital operation has been found to reduce costs for film and waste disposal, and to increase staff productivity substantially. It also saves time for clinicians.

Problems the System Addresses: Images are an important part of the medical record of the patient, but they are not normally stored in the patient's chart because of their awkward size or non-paper media. It is a time consuming effort for the health care provider to obtain the information required for medical decision making. Even medical centers that have extensive online patient information still have difficulties when drawings, signed forms, and outside reports must be stored in a separate paper chart. This project provides an integrated online patient record that includes traditional patient chart components such as progress notes, reports, medications, and orders with multimedia patient data such as medical images, electrocardiograms, scanned documents, motion video and cine studies. The goal is to give clinicians access to all patient data in a fully integrated manner from any clinical workstation in the hospital or on the VA network.

Innovative Features: The VA's multimedia online patient record was the first of its kind, and remains unique in the world. For its integration of images from a wide range of medical specialties with complete bi-directional electronic patient chart capability. At the present time, over 100 million images are part of online patient records at over 115 VA medical centers. The VA has mandated the system's installation at all VA Medical Centers.

Most recently DICOM capture has been extended to serve the clinical specialties such as ophthalmology and dentistry. A careful workflow study allowed automated capture to interact comfortably with the patient care processes. Images are captured automatically and associated with consults and report notes. The VA was instrumental in getting vendors focused on the importance of standard interfaces, through DICOM requirements for procurements.

As the multimedia patient record has become almost complete, regulatory requirements for a single source of the patient record have dictated that the VA scan and index the remaining few non-electronic documents including signed forms, flowsheets, and outside reports. Another important requirement that has arisen is for the development of a standardized method for indexing that allows retrieval of images and documents regardless of what portion of the medical record they are associated with.

Benefits: The electronic patient record is available at VA Medical Centers across the country, providing timely and complete patient information at the point of care and in conference and procedure rooms. Clinicians have a tool that enhances their productivity and helps them provide better patient care. A number of substantial savings in staff time and other costs have been documented. The system allows patients to participate in the decision making process, and has reduced their waiting times.